CLAIMS

I Claim:

1. A self-condensing sensor assembly for monitoring pH:

An outer tubular member;

an inner tubular member, said outer tubular member co-linearly enclosing an inner tubular member;

an antimony sensor enclosed within said inner tubular member;

a reference element enclosed within said outer tubular member and located in a proximal position;

a wick material, said wick material having one side which partially surrounds and substantially engages a portion of said inner tubular member, said wick material extending from said antimony sensor to a proximal position whereby said wick material is substantially engaged to said reference element; and

an ion conduction fluid entrained or retained within said wick material.

2. The sensor as recited in claim 1, wherein said wick material is selected from the group consisting of fibrous polymeric meshes of polyester, polyimide,

polyethylene, polypropylene, polyvinyl chloride, polystyrene, ABS, nylon, delrin, or polyethylene terephthalate (PET), polytetrafluoroethylene (PTFE) or any combinations thereof.

3. The sensor as recited in claim 1, wherein said ion conduction fluid contains a cellulose based material.

4. The sensor as recited in claim 1, wherein said ion conduction fluid comprises an electrolyte/water base gel.

5. The sensor as recited in claim 1, wherein said reference element comprises silver chloride.

6. The sensor as recited in claim 1, wherein said reference element comprises a silver element having a silver chloride coating.

7. The sensor as recited in claim 1, wherein said co-linear configuration between said outer tubular member and said inner tubular member are offset.

8. The sensor as recited in claim 1, further comprising an electrical and display means which is in communication with the sensor and processes information obtained from said sensor for presenting a pH reading.

9. A self-condensing sensor assembly for monitoring pH:

an outer tubular member;

an inner tubular member, said outer tubular member coaxially enclosing an inner tubular member;

an antimony sensor enclosed within said inner tubular member and substantially engaged to said inner surface of said inner tubular member, said antimony sensor including an electrical communication which extends to a proximal terminal position;

a reference element enclosed within said outer tubular member and located proximal to said antimony sensor, said reference sensor element includes an electrical communication which extends to the proximal terminal position;

a wick material, said wick material having one side which partially surrounds and substantially engages a portion of said inner tubular member, said wick material extending from said antimony sensor to a proximal position whereby said wick material is substantially engaged to said reference element; and

an ion conduction fluid is entrained or retained within said wick material.

10. The sensor as recited in claim 9, wherein said wick material is selected from the group consisting of fibrous polymeric meshes of polyester, polyimide, polyethylene, polypropylene, polyvinyl chloride, polystyrene, ABS, nylon, delrin, or polyethylene terephthalate, (PET) polytetrafluoroethylene (PTFE) or any combinations thereof.

11. The sensor as recited in claim 9, wherein said ion conduction fluid contains a cellulose based material.

12. The sensor as recited in claim 9, wherein said ion conduction fluid comprises an electrolyte/water base gel.

13. The sensor as recited in claim 9, wherein said reference element comprises silver chloride.

14. The sensor as recited in claim 9, wherein said reference element comprises a silver element having a silver chloride coating.

15. The sensor as recited in claim 9, wherein said co-linear configuration between said outer tubular member and said inner tubular member are offset.

16. The sensor as recited in claim 9, further comprising an electrical connector on the proximal end

of said sensor, said electrical connector is connected to said electrical communication with the antimony sensor and the reference element.

17. The sensor as recited in claim 9, further comprising a display means which is in electrical communication with the Antimony electrical communication and the reference element electrical communication; said display may further processes information obtained from said sensor for presenting pH data in digital or in an analog format.

18. The system as recited in claim 9, wherein said electrical communication is accomplished by a plurality of wires.

19. The system as recited in claim 9, wherein said electrical communication is accomplished by a wireless means.

20. A self-condensing sensor assembly for monitoring pH:

An outer tubular member;

an inner tubular member, said outer tubular member coaxially enclosing an inner tubular member;

an antimony sensor enclosed within said inner tubular member;

a reference element enclosed within said outer tubular member and located in a proximal position;

a wick material, said wick material having one side which partially surrounds and substantially engages a portion of said inner tubular member, said wick material extending from said antimony sensor to a proximal position whereby said wick material is substantially engaged to said reference element; and

an ion conduction fluid entrained or retained within said wick material.

21. A self-condensing sensor assembly for monitoring pH:

An outer tubular member;

an inner tubular member, said outer tubular member co-linearly or coaxially enclosing an inner tubular member;

an antimony sensor enclosed within said inner tubular member;

a reference element enclosed within said outer tubular member and located in a proximal position;

a wick material, said wick material having one side which partially surrounds and substantially engages a portion of said inner tubular member, said wick material extending from said antimony sensor to a proximal position whereby said wick material is substantially engaged to said reference element;

an ion conduction fluid entrained or retained within said wick material,

said wick material and said antimony sensor are positioned at a terminal end of said outer tubular member,

said sensor assembly being of a small mass such that it functions to cool efficiently and subsequently condenses humid gases in close proximity to said sensor to form a liquid on said terminal end.